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Metopon Hydrochloride

An Experiment in Clinical Evaluation

By NATHAN B. EDDY, *Principal Pharmacologist* [1]

The Committee on Drug Addiction of the National Research Council recommended in 1946 that the new morphine derivative, Metopon hydrochloride (figure 1) be made available to physicians subject to certain restrictions and under the Committee's supervision. This recommendation was based upon preliminary trials, laboratory and clinical (*1*, *2*, *3*), which indicated that the advantages of Metopon were relative freedom from side-effects, analgesia with little sedation, and slower development of tolerance and addiction than with morphine and other of its derivatives.

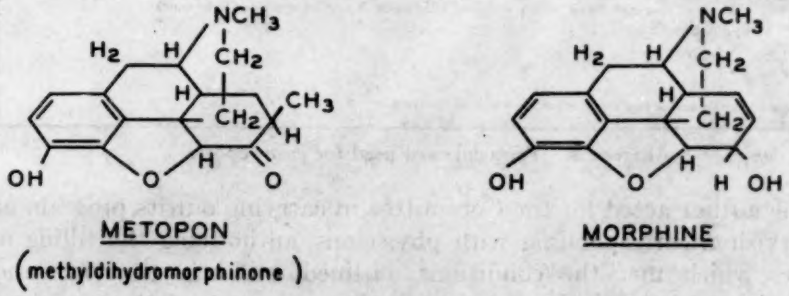

Figure 1

The recommendation resulted in the issuance of special licenses by the Federal Security Agency, assignee of the patent (*4*), to Mallinckrodt Chemical Works, Merck and Company, and New York Quinine and Chemical Works, as manufacturers, and to Parke, Davis and Co., and Sharp and Dohme, Inc., as distributors. The licenses specified that the drug be put up in capsule only for oral administration; that it be sold on Narcotic Order to the attending physician only; that all orders be subject to acceptance by the Committee; that the use of

[1] From Experimental Biology and Medicine Institute, National Institutes of Health.

the drug be limited to terminal cancer cases; that the physician's statement accompanying an order must satisfactorily indicate fulfillment of that restriction, and that the physician would be expected to report back to the Committee on the use of the drug.[2]

Under these conditions Metopon hydrochloride came on the market May 15, 1947, and continued to be subject to restriction until June 15, 1948, when supervision by the Committee was terminated and the drug was made available on prescription like other narcotics. It continues to be offered, however, in capsule form only for oral administration and to be recommended for the treatment of chronic pain where an opiate is indicated.

PHYSICIAN: _____
Surname Initials Address Narcotic Reg. No. Date

PATIENT: _____
Name Age Sex Race Diagnosis Duration of disease

Previous treatment for pain relief:

Morphine Yes No Hypo Oral Dose _____ Duration of admin. _____ mos. _____ wks. _____ days

Codeine Yes No Hypo Oral Dose _____ Duration of admin. _____ mos. _____ wks. _____ days

Demerol Yes No Hypo Oral Dose _____ Duration of admin. _____ mos. _____ wks. _____ days

Other Yes No Hypo Oral Dose _____ Duration of admin. _____ mos. _____ wks. _____ days
(Specify)

Why is switch to metopon made? _____

Metopon administration: Date started _____

Dose—Single _____ Daily _____ Total to date _____ Days of admin. _____

Pain relief—Complete Fair Poor None

Did drug promote sleep? _____

Mental condition after drug—Clear Dull Dopey

Side actions—(Please give details of any undesired effects seen; if none are seen please write none)

Wherever possible answer by crossing out words which do not apply.

Figure 2. Protocol card used for case reports

The author acted for the Committee in carrying out its program of supervision, corresponding with physicians, authorizing the filling of orders which met the conditions outlined, seeking, receiving and analyzing reports, and preparing finally a resumé of the program, presented here.[3]

The program entailed correspondence with 3,604 physicians. Of these, 114 did not complete an order for Metopon. Thirty-six initial orders were rejected because of insufficient information furnished about intended use, or because the drug was requested for use other than in cancer patients, or because of technical inaccuracy, the

[2] The expenses of the program of supervision of Metopon distribution by the Committee on Drug Addiction of the National Research Council were defrayed by a grant from the American Cancer Society and by contributions from Parke, Davis, and Company and Sharp and Dohme, Inc.

[3] A report on the first six months of the Metopon program was published in J. A. M. A., 137: 365-367 (1948).

physician failing to supply a corrected form. All but 415, about 12 percent, of physicians ordering subsequently replied in some fashion with respect to their patient or patients and their use of the drug. To accomplish this result, a letter was written to each physician at the time of his order as well as thousands of follow-up letters later; some 2,000 letters were written reminding physicians that a report had not yet been received. Nine hundred and four physicians re-ordered Metopon and 42 percent of this number re-ordered more than once. Three hundred and three new patients are specifically referred to in placing of these re-orders.

With respect to all orders, the physicians indicated they intended to use or had used Metopon for 5,625 patients. They reported back on 4,460. Of these, the disease had so far advanced in 425 that death occurred before the drug was received. It was reported that in 314 others the drug was not used; usually the patient had sought other medical care. Forty-nine reports must be omitted because, although attempted, oral medication was impractical on account of difficulty in swallowing or vomiting from the disease which prevented retention of anything taken orally. There remain 3,672 reports which are the basis of the following analysis. Most of these were received on the protocol card provided (figure 2).

Table 1 summarizes the reasons given by physicians for trial of Metopon and other pertinent information about the patients. Table 2 summarizes all reports with respect to dosage and effects, and table 3 lists the side-effects incident to the administration of Metopon.

Considering the case reports as a whole and the data presented in tables 2 and 3, there are several reasons against acceptance of this data as a true measure of Metopon's effectiveness:

1. *Brief inadequate trial:* In 560 reported cases trial of Metopon was for 3 days or less. In some of these the report was obviously an early one on a patient for whom the drug was being continued. Physicians were urged to report early in order that, if necessary, comment or

TABLE 1.—*Reasons given for trial of Metopon and data on previous narcotic experience*

	Cases
To avoid hypodermic administration	632
Inadequacy of pain relief measures being employed, usually indicating tolerance to previous medication	1902
Nausea and/or vomiting with previous medication	490
Depression with previous medication	194
Side-effects with previous medication, not specified but probably, as a rule, including nausea	120
To avoid addiction	122
To avoid morphine	69
Trial, no other specific reason	643
No previous narcotic administration	170
Previous narcotic administration for 6 weeks or less	608
Previous narcotic administration for 2 months or more	2388
Previous morphine, Pantopon or Dilaudid administration for 2 months or more	1309

TABLE 2.—*Dosage, duration and effect of Metopon administration*

	Cases	Percent
Dosage:		
3.0 mg	1,117	30.4
6.0 mg	1,204	32.8
9.0 mg	716	19.5
>9.0 mg	67	1.8
No report	568	15.4
Administration 3 days or less	560	15.2
Administration 25 days or more	797	21.7
Deaths within 10 days of beginning administration	134	3.6
Administration discontinued, account dependence on previous medication	343	9.3
Degree of pain relief:		
Complete	827	22.5
Fair	1,256	34.2
Poor	1,008	27.4
None	581	15.8
Sleep following administration	938	27.4
Sleep attributed by physician to relief of pain	[1] 78	2.1
No sleep attributable to Metopon	2,555	74.8
Mental condition:		
Clear	2,518	73.0
Dull	640	18.7
Dopey	186	5.4
Confused	33	0.9
Unchanged	28	0.8
No side-effects	3,036	82.4

[1] Included in both preceding and following items.

TABLE 3.—*Side effects incident to Metopon administration*

	Cases	Percent
Total	636	17.3
Nausea:		
Usually with vomiting	385	10.4
With previous medication (490), occurring with Metopon	40	
Due to disease	54	
Due to withdrawal from previous medication	182	
Apparently medication	149	4.0
Abstinence signs:		
From previous medication disappearing during continuing Metopon administration	50	
Other side effects:		
Agitation [1]	42	
Sweating	27	
Headache	25	
Dizziness	25	
Restlessness [2]	24	
Burning in stomach	20	
Disturbing dreams and/or hallucinations	19	
Diarrhea, usually abstinence sign	17	
Euphoria	13	
Dryness of mouth	12	
"Hotflashes" or general burning sensation over body	11	
Anorexia	7	
Tinnitus	7	
Difficulty in urination and/or anuria	5	
Itching	4	
General feeling of numbness	3	
Urticaria	2	
Precordial distress	2	
Hiccough	2	
Edema of face	1	
Allergic reaction	1	
"Floating" sensation	1	
Cyanosis	1	
Dyspnoea	1	
Diuresis	1	
Total	271	7.3

[1] Agitation due to lack of satisfaction of psychic dependence on previous medication.
[2] Restlessness due to lack of satisfaction of psychic dependence, lack of sedative effect, or lack of pain relief.

advice might be offered with respect to dosage, etc. In most instances administration terminated within 3 days. Sometimes the patient was very near death when the drug was tried. More often the patient was already dependent upon another narcotic and demanded prompt return to it because Metopon did not satisfy the dependence, whether or not pain was relieved and whether or not physical signs of dependence appeared. Table 4 presents the results reported for these brief trials and percentages for all effects from table 2, corrected by subtracting the results of the brief trials.

2. *Dosage:* Previous observations (*3*) had indicated that the minimal analgesic dose of Metopon for severe clinical pain would be about 6.0 mg. As with other analgesics a larger dose may be required in some

TABLE 4.—*Effect of Metopon in trials of 3 days or less*

	Cases	Percent [1]	Corrected percent [2]
Degree of pain relief:			
Complete	41	22.5	25.2
Fair	86	34.2	37.5
Poor	179	27.4	26.6
None	254	15.8	10.4
Sleep following administration	66	27.4	30.1
No sleep attributable to administration	457	74.8	72.5
Mental condition:			
Clear	345	73.0	75.3
Dull	117	18.7	18.1
Dopey	36	5.4	5.2
Confused	12	0.9	0.7
Unchanged	10	0.8	0.6
No side effects	375	82.4	85.5
Total untoward reactions	185	17.3	14.4
Nausea	124	10.4	8.2
Disease	10		
Withdrawal from previous medication	73		
No cause other than medication apparent	41	4.0	3.4
Other side effects	61	7.3	6.6

[1] From table 2.
[2] Corrected for brief trials.

instances, especially for very severe pain. Also, if tolerance develops the dose will need to be increased. Since it is desirable in any case and at any time to keep the dose at the lowest level which will afford adequate pain relief, Metopon was put up in capsules each containing 3.0 mg. of the drug as hydrochloride for the convenience of physicians in attaining this end. The recommended starting dose was two capsules (6.0 mg.) and emphasis was placed on subsequent adjustment of the dose to the need of the case. Excluding the cases for whom the dose used was not reported, in 35.9 percent the capsules were taken singly; in 38.7 percent the 6.0 mg. dose was used, in 23.0 percent the dose started at 9.0 mg. or was increased to that level within a few doses, and in only 2.1 percent was the dose greater than 9.0 mg.

In table 5, the data on the effect of Metopon has been reclassified according to dose. The over-all effect of the 3.0 and 6.0 mg. doses is very similar. Probably this means that physicians tended to prescribe the smaller dose for the patients with less pain, and that in many cases of mild chronic cancer pain 3.0 mg. of Metopon may constitute a satisfactory analgesic dose. The effect of 9.0 mg. appears to be less than that of smaller doses. It has already been shown that about two-thirds of all patients had received other narcotics for 2 months or more, were probably tolerant to and were usually dependent upon such previous medication. It was these tolerant individuals almost always on whom the 9.0 mg. dose was tried and too often failed indicating, we believe, cross-tolerance between Metopon and other narcotics.

TABLE 5.—*Effect according to dose, all cases*

	3.0 mg.		6.0 mg.		9.0 mg.	
	Cases	Percent	Cases	Percent	Cases	Percent
Pain relief:						
Complete	271	24.2	341	28.3	107	14.9
Fair	407	36.4	423	35.1	249	34.7
Poor	269	24.0	280	23.2	220	30.7
None	170	15.2	162	13.4	140	19.5
Sleep promoted	392	35.2	317	27.0	130	18.4
No sleep	720	64.7	854	72.9	570	81.4
Mental condition:						
Clear	785	73.2	881	74.6	542	77.7
Dull	205	19.1	217	18.4	109	15.6
Dopey	61	5.7	59	5.0	36	5.1
Confused	7	0.6	13	1.1	6	0.8
Unchanged	13	1.2	9	0.7	3	0.4
No side effects	915	81.9	998	82.8	601	83.9
Nausea	136	12.1	118	9.8	69	9.6
Due to disease	21	----------	20	----------	7	----------
Due to withdrawal of previous medication	70	----------	64	----------	37	----------
No cause other than medication apparent	45	4.0	34	2.8	25	3.4
Other side-effects [1]	65	5.8	90	7.4	46	6.4

[1] Including agitation and other abstinence signs.

Among all cases reported, there are only 170 to whom no previous narcotic had been administered. In 74 of these the dose was 3.0 mg., in 53 it was 6.0 mg., in 17 it was 9.0 mg., and in the others the dose used was not reported. The results in these cases are classified in table 6 according to dose and show distinctly better relief with the 6.0 mg. than with the 3.0 mg. dose. There were two failures with the 9.0 mg. dose, but the group is too small to justify a conclusion on this point.

3. *Tolerance and addiction to previously administered narcotics:* Of the 3,166 patients for whom information on this point has been re-

ported, only 170 (5.3 percent) had received no narcotic previous to Metopon, 608 (19.2 percent) had taken other narcotics for 6 weeks or less, and 2,388 (75.3 percent) had been taking other narcotics for 2 months or more. Of this last group 1,309 had taken morphine and/or Dilaudid for 2 months or more, and 623 patients had taken Demerol for 2 months or more. Incidentally, addiction to Demerol was admitted in 12 patients and probable from the record in 53 others. In six of admitted addiction cases, Demerol was reported to be the only narcotic used.

Tolerance to morphine and related substances may appear within 6 weeks but will not, as a rule, become marked within that time. Some tolerance to the analgesic effect of morphine, etc., will, however, almost always appear within 2 months and will increase with longer

TABLE 6.—*Effect according to dose; cases receiving no narcotic previous to Metopon*

Effect	3.0 mg.		6.0 mg.		9.0 mg.	
	Cases	Percent	Cases	Percent	Cases	Percent
Pain relief:						
Complete	35	47.3	31	58.4	7	41.1
Fair	27	36.4	18	33.9	6	35.2
Poor	8	10.8	2	3.7	2	11.7
None	4	5.4	2	3.7	2	11.7
Sleep following administration	36	49.3	22	41.5	9	52.9
No sleep	37	50.6	31	58.4	8	47.0
Mental condition:						
Clear	57	78.0	44	83.0	17	100.0
Dull	12	16.4	7	13.2	----------	----------
Dopey	3	4.1	2	3.7	----------	----------
Confused	1	1.3	----------	----------	----------	----------
No side-effects	72	97.3	45	84.9	17	100.0
Nausea	2	2.7	[2] 4	7.5	----------	----------
Nausea due to disease	[1] 2	----------	3	----------	----------	----------
Other side-effects	0	----------	4	7.5	----------	----------

[1] One attributed to disease, other to X-ray treatment.
[2] In the one case of nausea not attributed to disease physician said, "When sufficient drug was taken to relieve pain stomach was so upset drug had to be discontinued."

periods of administration. Cross-tolerance between morphine and its derivatives has been demonstrated repeatedly. Cross-tolerance between other narcotics and Metopon will be indicated by diminishing effect of the same dose of Metopon given after longer and longer periods of other narcotic administration. This is clearly shown in table 7 where the results of 6.0 mg. doses have been grouped according to the three categories of previous medication.

It is noteworthy that sleep after Metopon administration was reported most frequently in the group having had no previous narcotic. This may indicate cross-tolerance to sedative effect but such an explanation seems unlikely because retention of mental clarity was also greatest in this group. The high incidence of sleep would seem to be, therefore, an indirect result of pain relief.

TABLE 7.—*Effect of 6.0 mg. doses of Metopon grouped according to previous narcotic medication*

Effect	No previous administration		6 weeks or less		2 months or more	
	Cases	Percent	Cases	Percent	Cases	Percent
Degree of pain relief:						
Complete	31	58.4	87	38.4	199	24.0
Fair	18	33.9	73	32.3	297	35.8
Poor	2	3.7	43	19.0	209	25.2
None	2	3.7	23	10.1	124	14.9
Sleep	22	41.5	64	28.4	204	24.8
No sleep	31	58.4	161	71.5	617	75.1
Mental condition:						
Clear	44	83.0	175	77.7	615	74.9
Dull	7	13.2	38	16.8	157	19.1
Dopey	2	3.7	6	2.6	42	5.1
Confused			6	2.6	7	0.8
No side-effects	45	84.9	206	91.1	661	79.7
Nausea:						
Usually with vomiting	4	7.5	11	4.8	97	11.7
Due to disease	3		3		12	
Due to withdrawal from previous medication			2		61	
No cause other than medication	1	1.8	6	2.6	24	2.8
Other side-effects	4	7.5	11	4.8	76	9.1

Nausea and other side-effects were reported most frequently in the group having previously taken the most narcotic. However, if the figure for the incidence of nausea is corrected by subtracting the cases where the symptom is attributable to the disease or clearly an abstinence phenomenon, there is little difference in the occurrence of nausea in the three groups.

Metopon substitutes for morphine in a known addiction poorly and incompletely (*5*). In other words, substitution of Metopon for morphine in a case of addiction to the latter may permit the appearance of abstinence phenomena because psychic and physical dependence have not been satisfied. Physicians have referred specifically to the existence of addiction in 154 of the patients for whom Metopon was tried; their reports indicate clearly the presence of addiction in at least 513 other cases. Metopon administration was discontinued because of the addiction in 343 instances, usually, but not always, because of the appearance of physical signs of abstinence. In almost 50 percent of all cases where nausea and vomiting appeared during Metopon administration these symptoms are attributable to withdrawal of the previous narcotic (*see* table 2). Some of the other symptoms listed in table 3 as side-reactions undoubtedly are of similar origin.

Metopon nevertheless must have to a considerable degree satisfied existing dependence, or the incidence of nausea, vomiting, and other abstinence signs would have been much higher. The reports include 50 in which mild abstinence symptoms are specifically described as

appearing at the outset of Metopon substitution for morphine or other narcotic and disappearing within a few days of continuing Metopon administration. Physicians have found also that abstinence symptoms are least troublesome if the previous narcotic is rapidly reduced instead of discontinued abruptly during the first few days of Metopon administration, but the record as a whole certainly indicates that results are significantly better when Metopon is employed early before tolerance to and dependence on other narcotics have developed.

Metopon administration for 4 weeks or more has been reported in 500 cases. There was no apparent tolerance in 381 or 76 percent, distributed as follows:

Period of administration, days:	*Cases*
28 to 32	73
33 to 60	154
61 to 90	86
91 to 120	35
121 to 330	33

Diminishing effect of the drug after administration for 1 week or more is reported 170 times as follows:

Period of administration, days:	*Cases*
7	11
8 to 21	27
22 to 30	43
31 to 60	56
61 to 90	16
91 to 120	11
>120	6

The diminishing effect was reported as such, the dose remaining unchanged or as an increase in dose to maintain an effect. The evidence as a whole indicates slower development of tolerance than is to be expected with similar administration of morphine.

Canadian distribution of Metopon

With the approval of Canadian narcotic control authorities, Parke, Davis and Company's Canadian branch obtained a special license for the distribution of Metopon to Canadian physicians. The conditions of distribution were exactly the same as in the United States—limitation to cancer patients, request for report on use, and supervision of the distribution by the author acting for the Committee on Drug Addiction. As in the United States, the drug was made available for oral use only, but for comparison it was marketed as a scored tablet. Each tablet contained 8 mg. of Metopon hydrochloride.

Metopon became available in Canada in December 1947. Up to June 15, 1948,[4] 200 Canadian physicians sought the drug for 256

[4] Metopon is now available on prescription like other narcotics in Canada as in the United States.

patients. Six orders were rejected because the case was not one of cancer. Forty-four physicians have not reported on their use of the drug. Reports on 156 patients are available for analysis.

Only 5 patients had received no previous narcotic; 27 had received other narcotics for 6 weeks or less, 109 for 2 months or more. No information is given in 15 cases about previous use of other narcotics.

Table 8 summarizes the results reported for all cases and for those patients having had no previous narcotic or other narcotics for 6 weeks or less. The results are essentially the same for both effectiveness and incidence of side-reactions as for administration of Metopon in capsule. Again, effectiveness is reduced and side-reactions (nausea) increased by extensive previous narcotic administration. The conclusion is obvious that Metopon can be administered orally as well in tablet form as in capsule, and no advantage seems to follow the use of 8 mg. instead of 6 mg. as the usual dose.

TABLE 8.—*Results of Metopon administration, Canadian reports*

	All reports		No previous narcotic or narcotics for 6 weeks or less	
	Cases	Percent	Cases	Percent
Dosage:				
4.0 mg	6	3.8	2	6.2
8.0 mg	131	83.9	27	84.3
12.0–16.0 mg	13	8.3	1	3.1
No report	6	3.8	2	6.2
Degree of pain relief:				
Complete	36	23.7	11	34.3
Fair	53	33.9	12	37.5
Poor	36	23.7	2	6.2
None	30	19.2	7	21.5
Sleep	43	29.0	13	40.6
No sleep	105	70.9	19	59.3
Mental condition:				
Clear	113	75.8	26	81.2
Dull	22	14.7	4	12.5
Dopey	13	8.7	2	6.2
Confused	1	0.6	----------	----------
No side-effects	127	81.4	27	84.3
Side-effects:				
Nausea:				
Usually with vomiting	21	13.4	2	6.2
With previous medication (21)	2	----------	----------	----------
Due to disease	5	----------	2	----------
Due to withdrawal from previous medication	8	----------	----------	----------
Apparently due to medication	8	5.1	----------	----------
Other side-effects:				
Dizziness	3	----------	1	----------
Agitation [1]	2	----------	----------	----------
Sweating	2	----------	----------	----------
Anorexia	1	----------	----------	----------
Headache	1	----------	----------	----------
Unpleasant dreams	1	----------	1	----------
"Gone feeling"	1	----------	1	----------
Total	11	7.0	3	9.3

[1] Probably related to psychic dependence on previous medication.

Summary

Metopon hydrochloride is an effective oral analgesic for chronic pain, the use of which is accompanied by a high incidence of mental clarity and a low incidence of side-reactions.

Since cross-tolerance between other narcotics and Metopon seems to exist and since the latter does not fully satisfy an established dependence, the use of Metopon is more satisfactory in cases receiving little or no previous narcotic medication.

Tolerance to Metopon develops more slowly than tolerance to morphine.

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Statistical Studies of Heart Disease

III. Heart disease associated with other major causes of death as primary or contributory cause

By MARY GOVER, *Biostatistician, Division of Public Health Methods, Public Health Service*

Diseases of the heart as a cause of death occur mainly among persons over 45 years of age; they are usually of a chronic nature and are frequently associated with other chronic and degenerative causes of death characteristic of later life. Expressed as a percentage of total contributory deaths, heart disease ranks first as a contributory cause, arteriosclerosis second, and intracranial lesions of vascular origin third. Because of its importance as a contributory cause of death it was thought advisable, in connection with these studies of heart disease, to examine the occurrence and extent of contributory, and also of primary heart disease mortality. Data are available from special cross-tabulations of associated causes made by the National Office of Vital Statistics for selected years.

This is the third in a series of studies dealing with the statistics of heart disease morbidity and mortality. The papers are prepared jointly by the Division of Public Health Methods and the National Office of Vital Statistics, with the cooperation of the Division of States Relations.

The certificate of death in use at the present time varies from State to State. However, that portion relating to certification of cause of death by the physician is relatively uniform and in conformity with suggestions outlined by the National Office of Vital Statistics. In general, space is provided for the certification of the immediate cause of death and one or more underlying causes to be recorded in order of time sequence stated in reverse order of occurrence from the immediate cause of death.

Somewhat less than half the death certificates filed each year report a single or sole cause of death only. The remainder contain two or more associated causes which are later coded as the primary and one contributory cause of death. Allocation to primary and contributory cause has been made in the past in accordance with procedures specified in the Manual of Joint Causes of Death.

The Manual of Joint Causes of Death is an outgrowth of rules developed through practical experience and embodied in the code of causes of death in use in France and England prior to the establishment of the United States Death Registration Area in 1900. The United States Manual was first published in 1914, with changes in 1925, 1933, and 1939 necessitated by revisions of the International List of Causes of Death. Cross-tabulations of deaths allocated as primary and contributory cause do not show causes of death in sufficient detail for a complete comparison with corresponding preferences stated in the Joint Cause Manual. For all practical purposes, however, the statement can be made that allocation of deaths to primary and contributory cause has, in the past, been largely in accordance with this arbitrary standard.[1]

Cross-tabulations of primary and one associated cause of death have been made by the National Office of Vital Statistics for the years 1917, 1925, 1936, and 1940. In these tabulations every cause of death is listed vertically as a primary cause and horizontally as a contributory cause of death. Each row of figures gives the numbers of deaths due to a primary cause tabulated according to contributory causes; each column of figures gives the numbers of deaths for each contributory cause tabulated according to primary cause. Of the total number of reported deaths allocated to heart disease as a sole, primary, or contributory cause [2] in 1940, 44 percent were designated as due to some form of heart disease as sole cause, 33 percent were allocated to heart disease as primary cause, and 23 percent as contributory to some other cause of death.

Tabulated mortality from all forms of heart disease (sole or primary) was 293 per 100,000 in 1940; 45 percent of this mortality was certified to a form of heart disease as the only cause, and 55 percent was allocated to heart disease as primary with an accompanying contributory cause. The principal contributory causes so allocated in 1940 (figure 1) are diseases of the arteries, related forms of heart disease, senility, and pneumonia of the older ages. These are numerically large causes of death; heart disease, however, is also allocated to a somewhat lesser extent as primary over many other specific causes. The total primary heart disease rate of 161 per 100,000 is not greatly in excess of the contributory rate of 121 per 100,000 distributed largely among nephritis, related forms of heart disease, diabetes, cancer, and pneumonia (figure 2).

[1] For a discussion of changes in methods of selecting the primary cause of death over a period of years see an earlier paper in this series (3) dealing with some of the factors which must be considered in studying trends of mortality from heart disease.

[2] Deaths certified as due to two forms of heart disease (primary and contributory cause) are considered to be deaths due to heart disease as a sole cause in the following percentages.

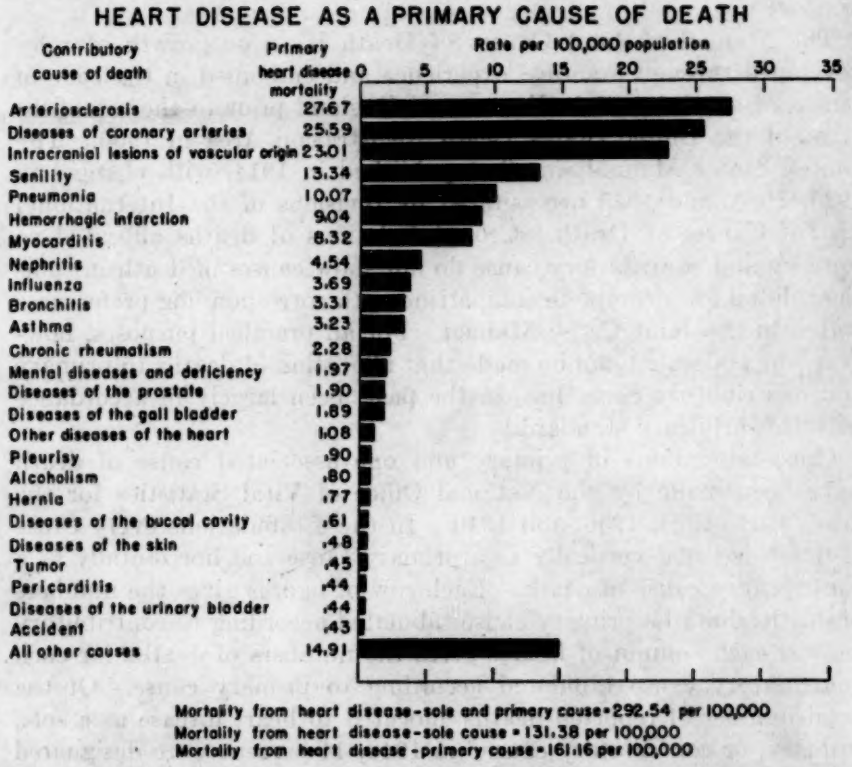


Figure 1. Mortality from heart disease as a primary cause of death associated with selected contributory causes, 1940.

Both primary and contributory heart disease mortality, as quoted above, include those deaths for which two or more forms of heart disease were certified, amounting to a rate of 36 per 100,000 in 1940. The corresponding rate in 1925 was 5 per 100,000. The trend in recent years, therefore, has been toward an immense increase in certification of more than one form of heart disease. There is, nevertheless, a marked increase in sole and in primary heart disease mortality irrespective of these deaths, and a slight increase in the contributory heart disease rate, 1925–1940 as shown in the following tabulation:

Heart disease mortality	*Rate Per 100,000*	
	1925	*1940*
Sole, exclusive of 2 or more forms of heart disease	87. 33	131. 39
Primary, exclusive of 2 or more forms of heart disease	94. 74	125. 51
Contributory, exclusive of 2 or more forms of heart disease	79. 89	85. 45
Two or more forms of heart disease	5. 35	35. 65

Several percentages of interest to be seen in the table are the following: 55 percent of all recorded deaths are certified as due to multiple causes, which are allocated as primary and contributory

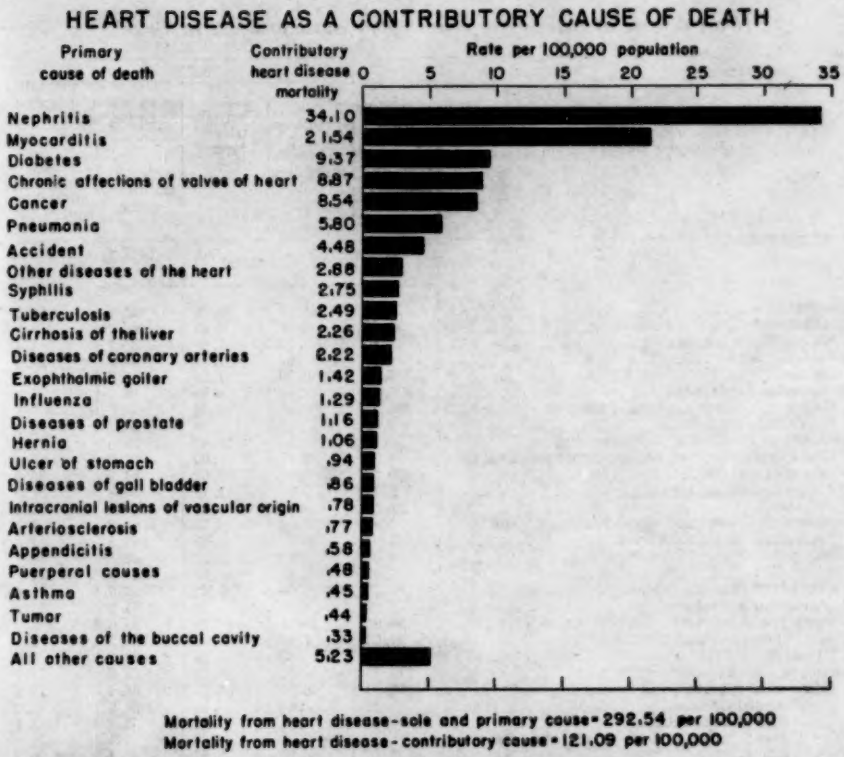


Figure 2. Mortality from heart disease as a contributory cause of death associated with selected primary causes, 1940.

cause; 8 percent of all recorded deaths specify heart disease as the contributory cause; 42 percent of all nephritis deaths specify heart disease as a contributory cause; similarly, 35 percent of diabetes deaths, and so forth; 43 percent of recorded deaths from heart disease specify a contributory cause which is other than a form of heart disease; an additional 12 percent of recorded deaths from heart disease certify two related forms of heart disease.

To summarize, deaths from heart disease are frequently certified as associated with other causes of death which are allocated either as primary or contributory to heart disease. Of the total recorded mortality from heart disease, 293 per 100,000, 55 percent or a rate of 161 per 100,000 represents deaths allocated to primary heart disease with an associated contributory cause. An additional rate of 121 per 100,000 represents deaths from causes to which heart disease was allocated as contributory. Heart disease is most frequently associated with diseases of the arteries as a primary cause and with nephritis as a contributory cause.

816882—49——3

Heart disease as primary or contributory cause of death in 1940

Cause of death [1]	Mortality from specified cause (sole and primary)	Primary heart disease mortality	Contributory heart disease mortality	Percent of mortality from specified cause with:	
				Any contributory cause	Heart disease as contributory cause
	Death rate per 100,000			Percent	
All causes	1,076.39	[2] 161.16	[2] 121.09	55.4	[2] 11.2
Infectious and parasitic diseases	90.95	4.30	7.31	42.7	8.0
Tuberculosis (all forms)	45.89	.11	2.49	33.7	5.4
Syphilis (all forms)	14.43	.01	2.75	65.2	19.0
Influenza	15.31	3.69	1.29	37.8	8.5
Cancer and other tumors	125.24	.51	8.98	58.6	7.2
Cancer and other malignant tumors	120.25	.06	8.54	58.3	7.1
Nonmalignant tumors	4.99	.45	.44	65.7	8.8
Rheumatism, diseases of nutrition, etc	36.13	3.94	11.48	78.8	31.8
Chronic rheumatism, other rheumatic diseases	1.36	2.28	.09	72.9	7.0
Diabetes mellitus	26.59	0.0	9.37	84.7	35.2
Exophthalmic goiter	2.78	0.0	1.42	80.8	51.0
Pellagra	1.61	0.0	.23	57.8	14.4
Diseases of the blood and blood-forming organs	7.37	1.64	.36	41.2	4.9
Leukemias and aleukemias	3.91	0.0	.28	42.5	7.3
Chronic poisoning and intoxication	2.07	.82	.21	38.7	10.1
Alcoholism	1.92	.80	.19	36.9	10.1
Diseases of the nervous system	103.55	26.66	1.46	66.6	1.4
Diseases of spinal cord	2.09	.01	.29	71.2	13.9
Intracranial lesions of vascular origin	90.95	23.01	.78	68.6	.9
Mental diseases and deficiency	1.03	1.97	.03	25.5	2.9
Epilepsy	1.73	.33	.10	33.2	5.6
Diseases of the circulatory system	314.39	66.62	36.73	55.6	11.7
Diseases of the heart (all forms)	292.54	35.65	35.65	55.1	12.2
Pericarditis	.46	.44	.01	54.6	3.0
Acute endocarditis	2.15	.21	.12	52.1	5.4
Chronic affections of valves and endocardium	33.87	.01	8.87	65.1	26.2
Diseases of myocardium	152.90	8.32	21.54	58.0	14.1
Diseases of coronary arteries, angina pectoris	77.06	25.59	2.22	45.6	2.9
Other diseases of heart	26.10	1.08	2.88	53.4	11.0
Arteriosclerosis and high blood pressure	18.30	27.67	.77	60.8	4.2
Diseases of the respiratory system	66.13	27.87	6.79	57.2	10.3
Bronchitis	3.01	3.31	.21	72.4	7.2
Pneumonia (all forms)	54.96	10.07	5.80	55.5	10.5
Pleurisy	1.55	.90	.15	85.1	9.7
Hemorrhagic infarction	2.31	9.04	.05	67.2	2.1
Asthma	1.70	3.23	.45	49.5	26.8
Diseases of the digestive system	59.25	5.74	6.61	72.1	11.1
Diseases of buccal cavity and adnexa	2.61	.61	.33	74.9	12.6
Ulcer of stomach and duodenum	6.80	.10	.94	85.1	13.8
Appendicitis	9.87	.00	.58	93.2	5.9
Hernia and intestinal obstruction	9.02	.77	1.06	70.4	11.8
Cirrhosis of liver	8.57	.06	2.26	70.9	26.3
Biliary calculi and other diseases of gall bladder	5.99	1.89	.86	80.6	14.4
Diseases of the genito-urinary system	95.37	8.24	35.85	72.4	37.6
Nephritis (all forms)	81.53	4.54	34.10	69.5	41.8
Calculi of urinary passages and diseases of urinary bladder	2.00	.44	.29	93.2	14.6
Diseases of prostate	6.66	1.90	1.16	92.9	17.4
Diseases of pregnancy, childbirth, puerperium	6.74	.13	.48	49.0	7.1
Diseases of skin and cellular tissue	1.13	.48	.02	62.8	2.1
Diseases of the bones	.90	.38	.02	68.5	2.4
Congenital malformations	9.98	.02	.23	44.3	2.3
Diseases peculiar to the first year of life	39.18	.03	.01	33.1	0.0
Senility	7.69	13.34	.01	2.1	.1
Violent or accidental deaths	94.27	.43	4.48	37.5	4.8
Ill-defined and unknown causes	16.02	----------	.07	1.4	.0

[1] Numbers of deaths are from Vital Statistics of the United States (1940), Joint-Cause-of-Death table. The causes shown are numerically important causes of death or causes for which heart disease was recorded as a contributory cause associated with at least 5 percent of deaths from that cause.

[2] A disease of the heart was certified, in 1940, as both primary and contributory cause of death in 46,935 deaths, or 35.65 deaths per 100,000 population and 12.2 percent of deaths from heart disease (sole and primary). If these deaths are considered to be due to a sole cause, heart disease, the primary heart disease rate becomes 125.51 per 100,000, the contributory rate 85.45 per 100,000, and the percentage of all deaths having heart disease as a contributory cause 7.9 percent.

Cross-tabulations of primary and contributory causes of death specific for geographic section and population-size would afford additional comparisons.

STATISTICAL STUDIES OF HEART DISEASE SERIES

(*1*) Moriyama, I. M., and Gover, Mary: I. Heart disease and allied causes of death in relation to age changes in the population. Pub. Health Rep. **63:** 537–545 (1948) Reprint 2854.

(*2*) Woolsey, T. D., and Moriyama, I. M.: II. Important factors in heart disease mortality trends. Pub. Health Rep. **63:** 1247–1273 (1948) Reprint 2889.

INCIDENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where and under what conditions cases are occurring

UNITED STATES

REPORTS FROM STATES FOR WEEK ENDED JANUARY 8, 1949

Summary

The total of 11,341 cases of measles reported currently, as compared with 7,161 last week and a 5-year median of 2,995, is more than reported for a corresponding week of the past 5 years. Increased incidence was reported in all of the 9 geographic areas. An aggregate of 9,173 cases was reported in the New England, Middle Atlantic, South Atlantic, West South Central, and Pacific areas. The 7 States reporting more than 400 cases, aggregating 6,441, cases are as follows (last week's figures in parentheses): Massachusetts 1,734 (1,102), New York 946 (512), Pennsylvania 473 (290), Maryland 513 (406), Virginia 419 (253), Texas 1,769 (1,072), California 587 (205). Since September 3, 1948 (approximate average date of seasonal low incidence), 63,510 cases have been reported, a larger number than reported for any corresponding period since that of 1943–44 (73,098). The 5-year median for the period is 28,893.

Of the 4,136 cases of influenza reported for the current week (last week 2,821, 5-year median 10,335), Texas reported 2,300 (last week 1,315), South Carolina 505 (last week 413), and Virginia 347 (last week 253). No other State reported more than 175 cases. The total reported since July 31, average seasonal low date, is 40,406 cases, as compared with 53,893 for the same period last year, which latter figure was also the 5-year median for the period.

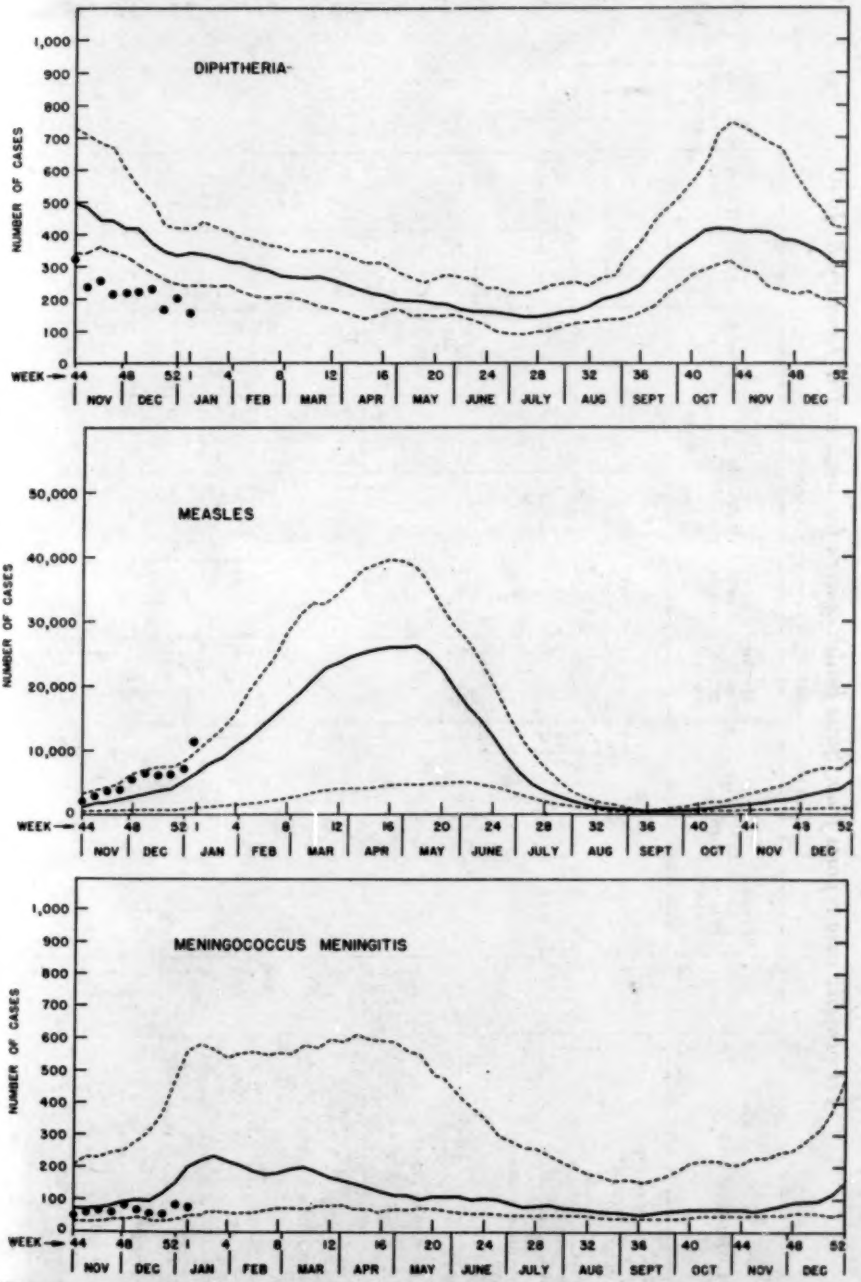
Of the total of 143 cases of poliomyelitis reported (last week 164, 5-year median 52), 57 occurred in California, 15 in Texas, 10 each in South Dakota and Kansas, and 6 each in Wisconsin and Washington.

One case of smallpox was reported, in Wisconsin. One suspected case of epidemic typhus fever reported in Tampa, Florida, is under investigation.

Deaths recorded during the week in 92 large cities in the United States totaled 10,619, as compared with 10,511 last week, 11,221 and 10,531, respectively, for the corresponding weeks of 1948 and 1947, and a 3-year median of 11,223. The total of infant deaths was 694, as compared with 657 last week and 809 for the 3-year median.

Communicable Disease Charts

All reporting States, November 1948 through January 8, 1949



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 7 preceding years. The solid line is a median figure for the 7 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks of 1949.

Telegraphic case reports from State health officers for week ended January 8, 1949

(Leaders indicate that no cases were reported)

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis, meningococcal	Pneumonia	Poliomyelitis	Rocky Mountain spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever [d]	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine	1			346		17			46				8	
New Hampshire			1	57		2			10				14	
Vermont				394		3			27				30	
Massachusetts	8	2		1,734		24			182				75	
Rhode Island				84		6			11				1	
Connecticut		3	3	190	2	57			52				8	
MIDDLE ATLANTIC														
New York	9		[b] 8	946	6	310	2		[c] 181			1	156	12
New Jersey			4	241	4	112	5		96				50	2
Pennsylvania	5		(b)	473	8		1		147		2	4	55	1
EAST NORTH CENTRAL														
Ohio	1			27	1	31			165				25	16
Indiana	3		42	18	1	23	3		55		1	1	14	
Illinois	6		3	45	3	148	1		157		3	2	43	7
Michigan [a]	1		1	354		18	2		115				12	
Wisconsin	3		33	335	4	6	6		58	1			23	
WEST NORTH CENTRAL														
Minnesota	2			7	1	4	3		63				5	
Iowa	3	1		17	3	3	[1] 1		35			(1)	2	2
Missouri	5	1	7	176	3	24	1		38		3		2	
North Dakota				14					17				1	
South Dakota	1					1	10		2					
Nebraska				6			2		6				3	
Kansas	1		4	76	1	27	10		38				4	
SOUTH ATLANTIC														
Delaware				4					6					
Maryland [a]	1			513	2	37	1		[c] 17		1		9	
District of Columbia	2			36	1	8			8		1		3	
Virginia	7		347	419	3	82	1		12		2	1	30	3
West Virginia	1		88	168	2	17			15			1	24	
North Carolina	11			152	1		4		25		2		19	
South Carolina	1		505	18	3	153	4		17		8	1	25	2
Georgia	12		12	84		17			13		6	2	2	7
Florida	3		2	21		26	2		3			5	14	1

South Carolina	1		6	6		17			13		6	2	2	7
Georgia	12		12	84		17			13			2	2	7
Florida	3		2	21		26	2		3			5	14	1
EAST SOUTH CENTRAL														
Kentucky	5		2	83		38	2		65				18	11
Tennessee	1	1	48	92	4	48	2		49		4		6	
Alabama	8		153	363		64			12		1	1	4	7
Mississippi [a]	8	1	14	34	1	31			5			2	8	
WEST SOUTH CENTRAL														
Arkansas	1		175	158		81			10			1	14	3
Louisiana	2	1	9	9	1	28	1		7		1	1		1
Oklahoma	3		91	27		44			17			2	3	2
Texas	14		2,300	1,769	6	298	15		30		1	5	98	31
MOUNTAIN														
Montana			1	13					22			1		
Idaho			5	67	1	7			[c] 13					
Wyoming				10		1			9				1	
Colorado	2		36	112	3	32	1		21				24	
New Mexico	2		2	114		14			12					
Arizona	13		149	56		28			2		1	1	5	1
Utah [a]	1		34	148		2			4				8	
Nevada				1										
PACIFIC														
Washington	2		3	363	1	4	6		40				7	
Oregon	2		32	380	1	35			13				19	
California	7		22	587	6	23	57		71			4	50	5
Total	158	10	4,136	11,341	73	1,934	143		2,019	1	37	36	922	
Median, 1944–48	361	5	10,335	2,995	191		52		2,383	4	39	40	1,746	
Seasonal low week ends	(27th) July 10		(30th) July 31	(35th) Sept. 4	(37th) Sept. 18		(11th) Mar. 20		(32d) Aug. 14	(35th) Sept. 4		(11th) Mar. 20	(39th) Oct. 2	
Since seasonal low week	5,272		40,406	63,734	917		[1] 27,470		24,717	16		[1] 3,152	10,955	
Median, 1943–48	7,932		53,893	28,893	1,695		13,394		40,954	80		4,291	27,391	

[a] Period ended earlier than Saturday.
[b] New York City and Philadelphia only, respectively.
[c] Including cases reported as streptococcal infection and septic sore throat.
[d] Including paratyphoid fever, currently reported separately, as follows: New York 1; Georgia 1; Florida 3; California 1; salmonella infections reported separately, not included, New York 2.
[1] Delayed reports: Iowa (included in cumulative figures only) poliomyelitis 19, typhoid fever 3.
Rabies in man, delayed report: Arkansas, 1 case.
Alaska: Influenza 3; measles 2; scarlet fever 2; streptococcic throat 2.
Territory of Hawaii: Lobar pneumonia 1; murine typhus 2; whooping cough 3; measles 510.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended December 18, 1948.—During the week ended December 18, 1948, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		113	2	354	636	103	170	107	472	1,957
Diphtheria				27	17			1		45
Dysentery, bacillary				6		3				9
German measles				23	12		10	4	5	54
Influenza		14			8	4	1			27
Measles		109	1	261	143	57	23	114	69	777
Meningitis, meningococcal					2		1			3
Mumps		6		111	270	46	21	8	34	496
Poliomyelitis				1		1			1	3
Scarlet fever		3	2	208	60	7	8		9	297
Tuberculosis (all forms)		1	9	88	28	184	6			316
Typhoid and paratyphoid fever				9	1					10
Undulant fever				2	1					3
Venereal diseases:										
Gonorrhea		11	14	68	59	44	10	29	80	315
Syphilis		7	15	78	46	14	10	2	16	188
Whooping cough		27		131	15	1	10	19	1	204

POLIOMYELITIS

Australia.—During the year 1948 poliomyelitis was reported in Australia as follows: First quarter, 13 weeks ending April 3, 150 cases; second quarter, 13 weeks ending July 3, 153 cases; third quarter, 13 weeks ending October 2, 160 cases.

New Zealand.—Poliomyelitis was reported in New Zealand during the year 1948 as follows: First quarter, 13 weeks ending March 29, 209 cases with 10 deaths; second quarter, 13 weeks ending June 28, 334 cases with 14 deaths; third quarter, 13 weeks ending September 27, 342 cases with 12 deaths.

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From consular reports, international health organizations, medical officers of the Public Health Service, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place	January–October 1948	November 1948	December 1948—week ended—			
			4	11	18	25
AFRICA						
Egypt	1					
Cairo	1					
ASIA						
Burma [1]	45	1				
Akyab [1]	5					
Bassein	1					
Moulmein	1					
Rangoon	2					
China:						
Hupeh Province	3					
Wuchang	3					
Kiangsi Province	[2] 9					
Kiangsu Province	2					
Shanghai	1					
India	159,857	7,160	[2] 1,481	[2] 645		
Ahmadabad	77					
Allahabad [1]	3	3				
Alleppey	1					
Bombay [1]	44		3	1	1	
Calcutta [1]	7,497	262	62	44	47	35
Cawnpore	157					
Cocanada	15					
Colachel	12					
Cuddalore	36					
Jodhpur [1]	56					
Kilakarai	21					
Lucknow	48					
Madras	1,059	71	8	17	8	6
Masulipatam	32	1				
Nagpur	71					
Negapatam	16	1				
New Delhi	26					
Raj Samand	6					
Tuticorin	16					
Vizagapatam	1					
India (French):						
Chandernagor	21					
Karikal	300					
Pondicherry	420					
Yanaon	2					
India (Portuguese)	29					
Indochina (French):						
Annam	[3] 41	4	[3] 4			
Cambodia	1,349	5			1	
Cochinchina	592	3				
Bien Hoa	1					
Chaudoc	2					
Cholon	29					
Giadinh	23					
Longxuyen	7					
Mytho	56					
Rachgia	133					
Saigon	136					
Laos	[3] 32					
Tonkin	20					
Pakistan	27,390	[4] 2,721				
Chittagong	35	6			3	2
Karachi	4					
Lahore	401	5	4	2	3	
Siam	43		1			
Syria	3					

[1] Includes imported cases.
[2] Suspected.
[3] Preliminary figures.
[4] Includes suspected cases.
[5] Deaths.
[6] Includes 12 deaths reported as cases in February 1948.
[7] For 2 weeks, October 31–November 13, 1948.

PLAGUE

(Cases)

Place	January–October 1948	November 1948	December 1948—week ended— 4	11	18	25
AFRICA						
Belgian Congo	18	2				
Costermansville Province	11					
Stanleyville Province	7	2				
British East Africa:						
Kenya	37					
Tanganyika	307	5				
Ethiopia	*9					
Madagascar	380	15		[1] 4		
Tamatave	1					
Tananarive	32	1				
Rhodesia, Northern	26	8	8			
Union of South Africa	[2] 45	2		1	1	
ASIA						
Burma [3]	820	76	1	31	18	
Mandalay	[4] 8					
Rangoon	19					
China:						
Chekiang Province	37	1				
Wenchow	12					
Fukien Province	343					
Foochow	4					
Kiangsi Province	[4] 23	40				
Kwangtung Province	116					
Yunnan Province	146	3				
India	21,480	1,076	[5] 195	[5] 189	[5] 1	[7] 2
Indochina (French):						
Annam	234	15	8	6		
Cambodia	3	1				
Cochinchina	44	1				
Laos	2		1			1
Mountain Area South-Indochina	22	1				
Java	[8] 1,305	172				
Pakistan	11					
Siam	122	4	3	4		
EUROPE						
Portugal: Azores	15					
SOUTH AMERICA						
Argentina	12					
Buenos Aires Province	9					
Brazil	[9] 125					
Alagoas State	22					
Bahia State	[9] 83					
Ceara State	[9] 11					
Pernambuco State	[9] 9					
Ecuador	38	2				
Chimborazo Province	1					
Loja Province	37	2				
Peru	[10] 49					
Cajamarca Department	11					
Libertad Department	1					
Lima Department	[10] 35					
Piura Department	[10] 2					
Venezuela:						
Aragua State	7					
OCEANIA						
Hawaii Territory: Plague-infected rats [11]	5					

[1] December 1–10, 1948.
[2] Includes 4 cases of pneumonic plague.
[3] Includes imported cases.
[4] Includes suspected cases.
[5] Preliminary figures.
[6] In Calcutta.
[7] In Bombay.
[8] Including 1 case of pneumonic plague in Surabaya.
[9] Includes 65 cases not previously reported, distributed as follows: Bahia State—June 1–30, 1948, Feira 4 cases, Seabra 2 cases; July 1–31, Feira 15 cases, Ipira 15 cases, St. Estevam 9 cases, Seabra 6 cases, Sao Goncalo 5 cases; Ceara State—July 1–31, Jardim 6 cases; Pernambuco State—July 1–31, Serrita 3 cases.
[10] Includes 14 cases not previously reported, distributed as follows: Lima Department—September 1–30, 1948, Huaura Valley, Chancay Province, 12 cases; Piura Department—September 1–30, Nangali, Huancabamba Province, 2 cases.
[11] Plague infection was also reported in Hawaii Territory, under date of February 27, 1948, in a mass inoculation of tissue from 19 rats.
*In Shoa Province, July 12–19, 1948.

SMALLPOX

(Cases—P=present)

Place	January–October 1948	November 1948	December 1948—week ended—			
			4	11	18	25
AFRICA						
Algeria	332	21				
Angola [1]	401					
Basutoland	3					
Belgian Congo [1]	2,492	203	90			
British East Africa:						
Kenya	119	22	3	2		
Nyasaland	4,294	459	70	25		
Tanganyika [1]	1,092	65				
Uganda	208	3	1			
Cameroon (French) [1]	4					
Dahomey	445	29				
Egypt [2]	452	6		[3] 3		
Eritrea	9					
Ethiopia	25					
French Equatorial Africa	16					
French Guinea	132	4				
French West Africa: Haute-Volta	438					
Gambia	27					
Gold Coast	1,515					
Ivory Coast	729	39		[4] 5		[5] 12
Libya	261				2	
Mauritania	2					
Mauritius	[3] 1					
Morocco (French)	35					
Mozambique	323	23				
Nigeria	4,085					
Niger Territory	369	30				
Rhodesia:						
Northern	662	681	672			
Southern	1,651	59				
Senegal	8					
Sierra Leone	196					
Sudan (Anglo-Egyptian) [1]	1,451	1		2	3	
Sudan (French)	17					
Swaziland	5					
Togo (British)	24					
Togo (French)	116					
Tunisia	536	6				
Union of South Africa	202	80	P	P	P	
ASIA						
Arabia	8					
British North Borneo	1					
Burma [2]	2,857	29	17	20	39	
Ceylon [2]	22					
China [3]	3,810	59				[7] 127
India	58,843	638	[6] 109	[6] 119		
India (French)	6					
India (Portuguese)	173	8				
Indochina (French)	3,936	45	22	50	12	32
Iran	695	[3] 24				
Iraq [2]	1,031	304	114	132	92	38
Japan	31	2				
Java [2]	2					
Lebanon [2]	67				[10] 2	
Macao Island: Macao	11					
Malay States (Federated) [2]	529	12		4	1	
Manchuria	78					
Pakistan [2]	11,961	[3] 39				
Palestine	8					
Philippine Islands: Mindoro Island		91				
Siam [2]	533	3	1	1		
Straits Settlements: Singapore	13					
Sumatra [2]	1,698					
Syria	534	330	149	42	76	
Transjordan [2]	14	2	11	2	11	
Turkey: Izmir	4					
(See also Turkey in Europe)						
EUROPE						
France	3					
Germany	3					
Greece	4					
Italy [2]	9					
Portugal	77					
Spain	19					
Canary Islands	9					
Turkey	20	18				3

See footnotes at end of table.

SMALLPOX—Continued

Place	January-October 1948	November 1948	December 1948—week ended— 4	11	18	25
NORTH AMERICA						
British Honduras	2					
Guatemala	2					
Mexico	956	18				
SOUTH AMERICA						
Argentina	34	6	1			
Bolivia	31					
Brazil	249	[11] 2	[11] 1			
Chile	8					
Colombia	5,756	236				
Ecuador [1]	3,228	176				
Paraguay [1]	101	4				
Peru [1]	2,247					
Trinidad	[13] 12					
Venezuela [1]	4,341	20			[13] 37	

[1] Includes alastrim.
[2] Includes imported cases.
[3] 2 in Alexandria, 1 in Port Tewfik.
[4] December 1–10, 1948.
[5] December 11–20, 1948.
[6] In Port Louis, imported.
[7] In Amoy, December 1–20, 1948.
[8] Preliminary figures.
[9] October 30–November 6, 1948.
[10] In Beirut.
[11] In Porto Alegre.
[12] Alastrim.
[13] December 5–18, 1948.

TYPHUS FEVER*

(Cases)

* (P = Present)

AFRICA						
Algeria	189	6				
Basutoland	9					
Belgian Congo [1]	224	9	6			
British East Africa:						
Kenya [1]	71					
Zanzibar	1					[2] 2
Egypt	360	5				
Eritrea	45	3				
Ethiopia	[3] 138					
French Equatorial Africa	1					
Gambia: Bathurst		1				
Gold Coast [1]	9		1			
Libya	491	4	1	1		
Madagascar: Tananarive	[3] 7					
Morocco (French)	79	3				
Morocco (International Zone)	5					
Morocco (Spanish) [1]	8					
Mozambique [1]	3					
Nigeria [1]	7					
Rhodesia (Southern)	[3] 1					
Senegal	[3] 4					
Sierra Leone	[3] 9					
Somalia	2					
Tunisia [1]	631	1				
Union of South Africa [1]	395	20	P	P	P	
ASIA						
Burma	5					
China [1]	191	5				[4] 1
India	[4] 1					
India (Portuguese)	7					
Indochina (French) [1]	70	2				
Iran [1]	137					
Iraq [1]	204	6	3	4	2	
Japan	461	12	5	12	10	
Java	3					
Malay States (Federated)			14			
Manchuria	38					
Pakistan	22					
Palestine [1]	12					
Philippine Islands [1]	[6] 5					
Straits Settlements: Singapore [1]	[7] 20	4				
Syria [1]	59					
Transjordan	60	7	3			
Turkey (see Turkey in Europe).						

See footnotes at end of table.

TYPHUS FEVER—Continued

Place	January–October 1948	November 1948	December 1948—week ended—			
			4	11	18	25
EUROPE						
Albania	15					
Bulgaria	744					
Czechoslovakia	8					
France	5					
Germany:						
British Zone	8					
French Zone	12					
United States Zone	2	6				
Great Britain:						
Cyprus [3]	1					
England and Wales	[3] [8] 2					
London	[3] [8] 1					
Ireland (Northern)	[3] 2					
Malta [3]	22	5				
Greece [1] [6]	224	108	1	7	6	
Hungary	56	3				
Italy [1]	566					
Sicily	22	2				
Netherlands	[3] 1					
Poland	286	32				
Portugal	4					
Azores: Ponta Delgada	[9] 1					
Madeira Islands: Funchal	1					
Rumania [1]	21,818	160	36			
Spain	21					
Turkey	331	31	6	7	10	6
Yugoslavia	592	10	3			
NORTH AMERICA						
Costa Rica [3]	21	3				
Cuba [3]	24					
Guatemala	181					
Jamaica [3]	18	1	1			
Mexico [1]	1,120	3				
Panama Canal Zone [1]	8					
Panama Republic	1					
Puerto Rico [3]	37	1				
SOUTH AMERICA						
Argentina	20					
Bolivia	[10] [11] 93					
Brazil	134	17	8	7		
Chile [1]	384					
Colombia [1]	2,779	238				
Curaçao [3]	16	5				
Ecuador [1]	404	32				
Peru	834					
Venezuela [1]	154	[12] 2			[12] 1	
OCEANIA						
Australia [3]	151	9				
Hawaii Territory [3]	12	1				
Honolulu	2	1				
New Caledonia	1					

*Reports from some areas are probably murine type, while others include both murine and louse-borne types.

#Includes 63 cases for the period July 19–August 23, 1948, not previously reported.

[1] Includes murine type.
[2] In Alexandria. Includes 1 imported case.
[3] Murine type.
[4] In Calcutta.
[5] In Bombay.
[6] Includes suspected cases.
[7] Includes nonresident and imported cases.
[8] Imported.
[9] Death.
[10] Includes 9 deaths reported as cases in Cochabamba Department in March 1948.
[11] Corrected figure.
[12] In Porlamar.
[13] In Maracaibo.

YELLOW FEVER

(C—cases; D—deaths)

Place		January–October 1948	November 1948	December 1948—week ended—			
				4	11	18	25
AFRICA							
Gold Coast:							
Kumasi	D	1					
Accra	D	2					
Ivory Coast:							
Gagnao	D	1					
Sudan (French):							
Sebekoro	D	1					
SOUTH AMERICA							
Argentina:							
Cerro Azul, Misiones Territory	D	1					
Bolivia.[1]							
Brazil:							
Bahia State:							
Ilheus City, Itajuipe	D	1					
Ubaitaba County	D	1					
Rio Grande do Sul State:							
Sao Luiz Gonzaga	D	[2] 1					
British Guiana	D	[3] 1					
Colombia:							
Antioquia Department:							
Maceo	D	4					
Yolomba	D	1					
Boyaca Department:							
Campohermoso	D	1					
Caldas Department:							
La Dorado	D	1					
Samana	D	1					
La Victoria	D	1					
Cundinamarca Department:							
Medina	D	7					
Intendencia of Meta:							
Cumaral	D	1					
Restrepo	D	1					
San Martin	D	1					
Peru: [4]							
Loreto Department:							
Nauta, Loreto Province	D	1					
Venezuela:							
Bolivar State:							
Boatanamo, Tumeremo County	D	1					

[1] Delayed report: During the months of April and May 1947, 5 cases of yellow fever were reported in Bolivia, distributed as follows: Santa Cruz Department—Nuflo de Chavez 1, Concepcion 1, Cercado 1; La Paz Department—Province of Sud Yungas, Chulmani 1, Province of Nor Yungas, Coroico 1.

[2] Suspected.

[3] In forested area, 60 miles up Berbice River from Kwakwani.

[4] Delayed report: On July 23, 1948, 1 death from yellow fever was reported to have occurred in Tingo Maria, Huanoco Department, Peru, in the month of November 1947.

DEATHS DURING WEEK ENDED JANUARY 1, 1949

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics

	Week ended Jan. 1, 1949	Corresponding week-1947
Data for 93 large cities of the United States:		
Total deaths	10,642	10,418
Median for 3 prior years	10,418	
Total deaths, 53 weeks of year	487,063	488,486
Deaths under 1 year of age	669	725
Median for 3 prior years	725	
Deaths under 1 year of age, 53 weeks of year	35,232	38,620
Data from industrial insurance companies:		
Policies in force	70,695,904	66,888,938
Number of death claims	11,770	7,715
Death claims per 1,000 policies in force, annual rate	8.7	6.0
Death claims per 1,000 policies, 53 weeks of year, annual rate	9.2	9.1